California Regional Water Quality Control Board
North Coast Region

Monitoring and Reporting Program NO. R1-2004-0052

WDID NO. 1B04028RSON

FOR

ARNOLD CARSTON
LARRY CARILLO
RICHARD CLAYTON

Former Golden Technology Site
3017, 3019, and 3033 Santa Rosa Avenue
Santa Rosa, California
Sonoma County

## GROUNDWATER MONITORING

1. Groundwater elevations in each monitoring well shall be measured at each sampling event. The depth to groundwater shall be measured to the nearest 0.01-foot increment prior to purging each monitoring well. Groundwater elevations shall be reported in tabular form indicating the surveyed elevations of each well reference point, depth to groundwater from the reference point, and the actual groundwater elevation. The data generated from the elevation readings must be referenced to mean sea level.

2. Groundwater samples shall be collected semi-annually for analysis from the following wells: MW-UA-01, MW-UA-02, PZ-UA-01, MW-2, MW-3, MW-4, MW-5, MW-6, MW-LA-01, MW-LA-02, and PZ-LA-01. Any additional monitoring wells installed at the Site shall be included in the semi-annual monitoring program.

3. All monitoring wells shall be purged of at least three casing volumes of water, or until dry, prior to sampling. Monitoring wells shall be allowed to recharge to at least 80 % of the initial casing volume prior to sampling. All purge water shall be impounded pending analysis for proper disposal. An alternative well-purging protocol may be used upon the written approval of the Executive Officer.

4. Chemical analyses shall be conducted by a laboratory certified by the California Department of Health Services for those analyses.

5. All wells identified in Item #2 above shall be tested semiannually for volatile organic compounds.

6. Within six months prior to implementing the injection of groundwater-treatment chemicals at the Site, groundwater monitoring wells MW-UA-01, PZ-UA-01, MW-UA-02, MW-2 and MW-5 shall be monitored and tested for the water quality parameters listed below. These monitoring wells shall also be monitored and sampled within one month following the chemical injections, and quarterly thereafter, until the Executive Officer concurs that water quality conditions have returned to baseline levels.

Treatability Study Water Quality Parameters

Constituent
Volatile organic compounds
Total organic carbon
Total dissolved iron
Dissolved manganese
Dissolved arsenic
Chloride
Nitrate
Sulfate
Alkalinity
Chemical oxygen demand
Oxidation-reduction potential *
Methane, ethane, and ethene
Dissolved oxygen *
pH *

***** Field monitoring: The detection instruments used, pre and post-calibration protocol and QA/QC methodology must be reported.

## GROUNDWATER MONITORING CONTINGENCY PLAN

1. If the post-injection analytical results from any groundwater monitoring well show that levels of iron, manganese, or arsenic in monitoring wells MW-2 and MW-5 are elevated 50 % or greater in comparison to the baseline levels detected during pre-injection monitoring, groundwater samples from that monitoring well shall be sampled and analyzed for the following constituents and water quality parameters within two weeks of receipt of the laboratory data:

   a. Dissolved arsenic
   b. Dissolved copper
   c. Total dissolved iron
   d. Dissolved mercury
   e. Dissolved vanadium
   f. Oxidation-reduction potential
   g. Total organic carbon
   h. Dissolved oxygen *
   i. pH *

***** Detection instruments used, calibration protocol and QA/QC methodology must be reported.

## AIR MONITORING CONTINGENCY PLAN

1. The air in the headspace of monitoring wells MW-UA-01, PZ-UA-01, MW-UA-02, MW-2 and MW-5 shall be tested for hydrogen sulfide gas prior to well purging at each monitoring event.

2. If the hydrogen sulfide gas concentration in any monitoring well headspace exceeds 0.03 parts per million by volume (ppmv), ambient air shall immediately be tested for hydrogen sulfide at the seven monitoring stations indicated on the Site plan presented as Appendix A of this Order. The time and wind direction at the monitoring point shall be recorded for each hydrogen sulfide measurement.

3. If hydrogen sulfide concentrations in ambient air exceed 0.03 ppmv at any location along the perimeter of the Site, the meter shall be re-calibrated and the air monitoring shall be repeated. If repeated monitoring indicates hydrogen sulfide concentrations greater than or equal to 0.03 ppmv in ambient air at any point along the Site perimeter, the condition shall be reported to the Executive Officer within 24 hours of the detection.

4. If hydrogen sulfide concentrations are confirmed to exceed 0.03 ppmv at any location along the Site perimeter, the dischargers shall submit within 14 days an evaluation report identifying the potential source(s) of hydrogen sulfide gas in ambient air and feasible mitigation alternatives.

5. The hydrogen sulfide meter must be capable of detecting hydrogen sulfide concentrations in air at levels greater than or equal to 0.01 parts per million by volume. The hydrogen sulfide meter shall be calibrated prior to field monitoring. The meter shall also be calibrated after the field monitoring to establish the probable accuracy of the field measurements. The accuracy of the meter shall be calculated as percent deviation from the known value of the reference gas used in the post-monitoring meter calibration. A deviation greater than 15% of known value of the reference gas indicates unacceptable meter performance. If the deviation is greater than 15% is observed, the cause of the inaccuracy shall be corrected and ambient air monitoring shall be repeated daily until the post-monitoring calibration indicates acceptable meter accuracy.

## REPORTING

Groundwater Monitoring Reports shall be submitted quarterly, and shall include the following elements:

1. A groundwater elevation map for each sampling event. The map shall include the following:

    a. Groundwater elevation isograms, groundwater flow direction, and the groundwater elevation gradient;
    b. The locations of monitoring wells;
    c. The locations of former and current underground tanks;
    d. The locations of on-site structures and other significant features.

2. A contaminant isogram map for the most significant pollutant or pollutants detected during the monitoring events. The map(s) should be presented at the same scale and display the same Site features as the groundwater elevation map.

3. Analytical data tables, including both current and historical analytical results. The results of air monitoring for hydrogen sulfide shall be included in the data tables. The tables shall include the following:

   a. Sample locations
   b. Date of sample collection
   c. Constituents and analytical results
   d. Quantification limits employed for non-detect analytical results.

4. Copies of the well purging and sampling field logs; chain of custody documents showing the time and date of collection and person collecting; and signed laboratory reports including quality control data and explanations of analytical anomalies, if any. These supporting documents may be included as appendices to the report.

Groundwater Monitoring Reports shall be submitted so that they are received by this office no later than the due dates in the following schedule:

| Reporting Period | Due Date |
|---|---|
| January, February, March | April 30 |
| April, May, June | July 31 |
| July, August, September | October 31 |
| October, November, December | January 31 |

Ordered by _____
Catherine Kuhlman
Executive Officer
August 25, 2004